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C L A I M S

1. Method for producing alloy wheels for motor vehicles,
each wheel (1) comprising a hub (3) and a rim (5); the
5   method including realising a finishing operation with a
cutting machine tool; the method being characterised by
comprising the steps of measuring the unbalance of said
wheel (1), and checking whether said unbalance is lower
than an unbalance acceptability value (M_{max}; $M1_{max}$;
10 $M2_{max}$) by means of a control unit (35).

2. Method according to claim 1, characterised by
calculating a mass (M; M1; M2) to be removed and the
respective phase (F; F1; F2) with respect to a
15 determined point on the wheel (1); said unbalance being
identified by said mass (M; M1; M2) and by said phase
(F; F1; F2).

3. Method according to claim 1 or 2, characterised by
20 calculating a simulated mass (MS; MS1; MS2) to be
removed from said wheel (1) to correct the unbalance of
the wheel (1) in working condition and the respective
simulated phase (FS; FS1; FS2).

25 4. Method according to claim 3, characterised by
comparing the said simulated mass (MS; MS1; MS2) with
the unbalance acceptability value (M_{max}; $M1_{max}$; $M2_{max}$).

5. Method according to claim 4, characterised by giving an unbalance acceptance signal (A) when the simulated mass (MS; MS1; MS2) is lower than the unbalance acceptability value (M_{max}; $M1_{max}$; $M2_{max}$).

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6. Method according to claim 3, characterised by removing the simulated mass (MS; MS1; MS2) from the wheel (1) to compensate the unbalance when the unbalance is not acceptable.

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7. Method according to one of the claims from 3 to 6, characterised by removing the simulated mass (MS; MS1; MS2) from the wheel (1) with a cutting machine tool.

15   8. Method according to claim 7, characterised in that the finishing machining process, the checking of unbalance and the possible removal of the simulated mass (MS; MS1; MS2) are carried out on a single cutting machine tool (24).

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9. Method according to one of the claims from 3 to 8, characterised by calculating the simulated mass (MS; MS1; MS2) according to the mass (M; M1; M2) and the phase (F; F1; F2) and the mass of a valve (MV) and the

25   phase of the valve (FV).

10. Method according to any one of the claims from 3 to

8, characterised by calculating the geometry (G; G1; G2) of the simulated mass (MS; MS1; MS2) according to the geometry (GR) of the wheel (1) and the specific weight (PR) of the wheel (1).

11. Method according to claim 10, characterised by calculating the geometry (G; G1; G2) of said simulated mass (MS; MS1; MS2) according to the type of machining (LT) selected.

12. Method according to claim 11, characterised by determining the coordinates (C; C1; C2) of the said geometry (G; G1; G2) with respect to a point of reference on the wheel (1).

13. Method according to claim 12, characterised by transferring the coordinates (C; C1; C2) to a numerical control (38) of the cutting machine tool (24).

14. Method according to one of the claims from 2 to 13, characterised by calculating a first mass and a second mass (M1, M2) to be removed and the respective first and second phase (F1, F2), separate from each other along the axle (2) of the wheel (1), calculates a first and a second simulated mass (MS1, MS2) and the respective first and second phase (FS1, FS2) in working conditions of the wheel (1), and removes the first simulated mass

(MS1) when the first simulated mass (MS1) is not lower than a first unbalance acceptability value ($M1_{max}$) and removes the second simulated mass (MS2) when the second simulated mass (MS2) is not lower than a second

5 unbalance acceptability value ($M2_{max}$).

15. System for producing alloy wheels for motor vehicles, each wheel (1) comprising a hub (3) and a rim (5); the system comprising a cutting machine tool for

10 carrying out finishing operation; the system being characterised by comprising means for detecting (14; 40) the unbalance of said wheel (1) and means for checking (19; 46; 50; 51) whether said unbalance falls within an unbalance acceptability value (M_{max}; $M1_{max}$; $M2_{max}$).

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16. System according to claim 15, characterised by comprising means for calculating (15; 41; 42) a mass (M; M1; M2) to be removed which causes the unbalance and the respective phase (F; F1; F2) with respect to a

20 determined point on the wheel (1).

17. System according to claim 15 or 16, characterised by comprising means for calculating (17; 44) a simulated mass (MS; MS1; MS2) to be removed from the wheel (1) to

25 correct the unbalance of the wheel (1) in working condition and the respective simulated phase (FS; FS1; FS2).

18. System according to claim 17, characterised by comprising means for checking (19; 46; 50; 51) the simulated mass (MS; MS1; MS2) of the unbalance acceptability with respect to an unbalance acceptability

5   value (M_{max}; $M1_{max}$; $M2_{max}$).

19. System according to claim 18, characterised by comprising means (20; 55) for giving a signal of acceptability (A) of the unbalance in the case where the

10   simulated mass (MS; MS1; MS2) is lower than the unbalance acceptability value (M_{max}; $M1_{max}$; $M2_{max}$).

20. System according to one of the claims from 15 to 19, characterised by comprising a cutting machine tool for

15   removing said simulated mass (MS; MS1; MS2) from the said wheel (1) to compensate the unbalance, when the mass (MS; MS1; MS2) is not lower than the unbalance acceptability value (M_{max}; $M1_{max}$; $M2_{max}$).

20   21. System according to claim 20, characterised by comprising a cutting machine tool (24) comprising sensors (36, 37; 36, 37, 39) for detecting unbalance, a control unit (35) for calculating the simulated mass (MS; MS1; MS2) and the respective phase (FS; FS1; FS2)

25   and the coordinates (C; C1; C2) of said simulated mass (MS; MS1; MS2), and a numerical control (38) suited to acquire said coordinates; said cutting machine tool (24)

being suited to carry out the machining finishing operation, to check the unbalance and eventually to remove the simulated mass (MS; MS1; MS2).